
Performance Metrics Tracking

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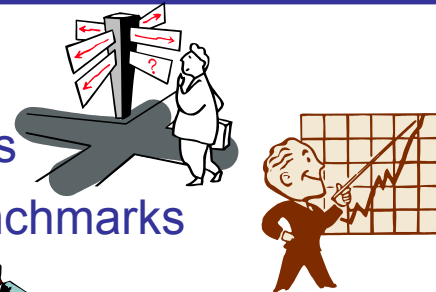
Overview

- What is Building Performance Metric Tracking?
- Performance Metrics Terminology
- Example Performance Metric Hierarchies
- Performance Metric Data Model
- Performance Model with Building Data Model
- Performance Metric Tracking Scenario
- Metracker Software Prototype
- Current Status and Next Steps

Building Performance Metric Tracking

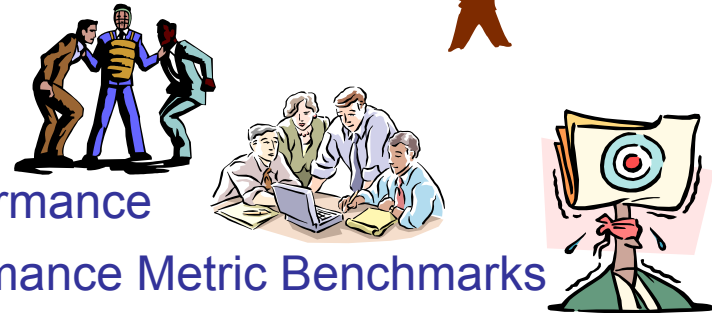
➤ Pre-Design Planning

- Identify Building Performance Objectives
- Establish Initial Performance Metric Benchmarks



➤ Design

- Elaborate Performance Metrics
- Evaluate Design Solution Performance
- Document As-Designed Performance Metric Benchmarks



➤ Commissioning

- Evaluate Constructed Building Performance
- Document As-Built Performance Metric Benchmarks



➤ Operations And Maintenance

- Continuously Evaluate Building Performance
- Update Performance Metric Benchmarks

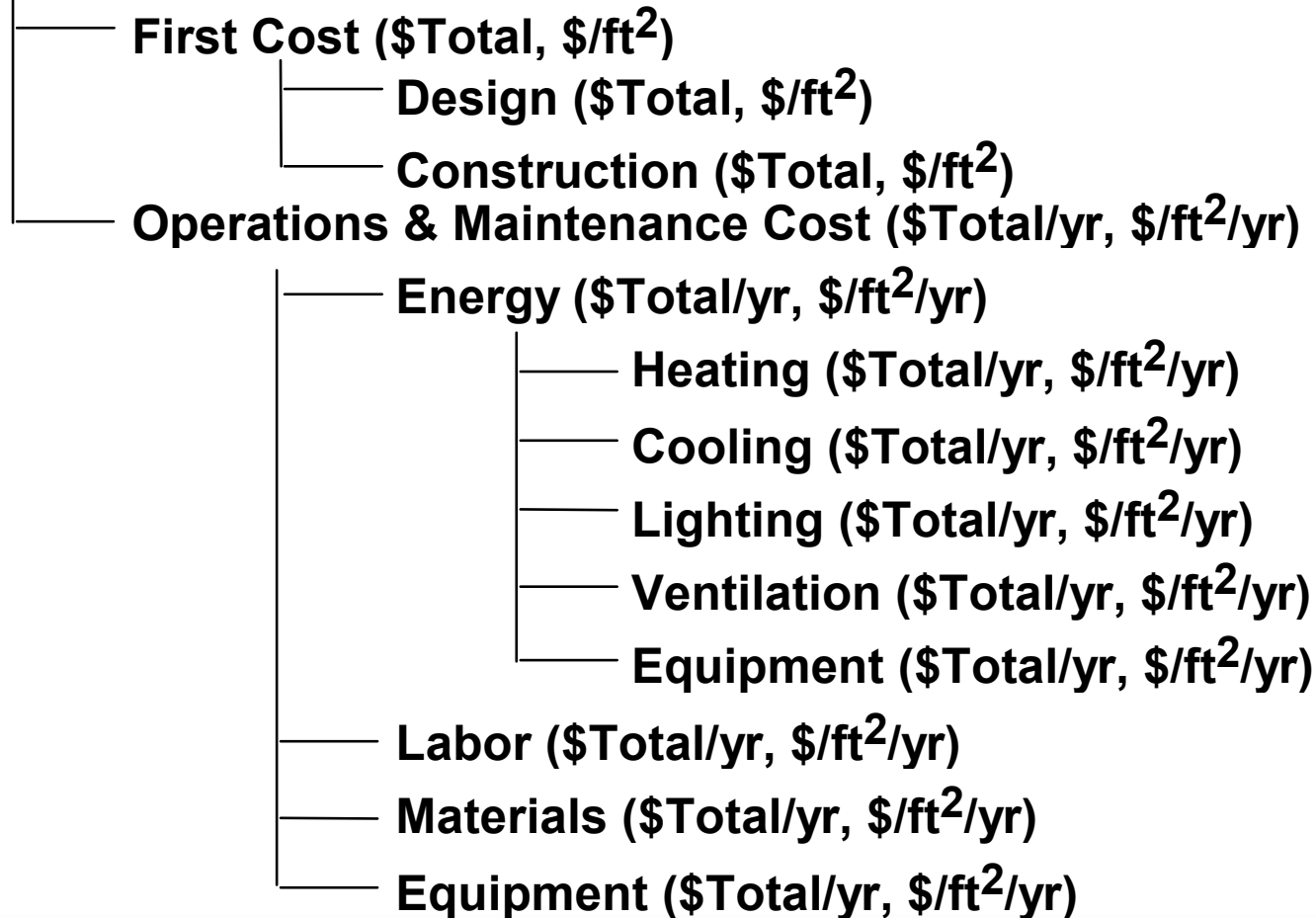


Performance Metric Terminology

- Performance Objectives
 - Qualitative statements regarding desired performance
 - energy-efficiency; environmental impact; life-cycle economics; occupant health, comfort and productivity; and building functionality, adaptability, durability, and sustainability
- Performance Metrics
 - Quantitative criteria in a structured format that provides value across the life cycle
 - Critical variables that measure or influence an objective
 - Capable of prediction or measurement at various stages of the project to evaluate the achievement of each objective
 - Both Benchmark and Assessment values defined and archived

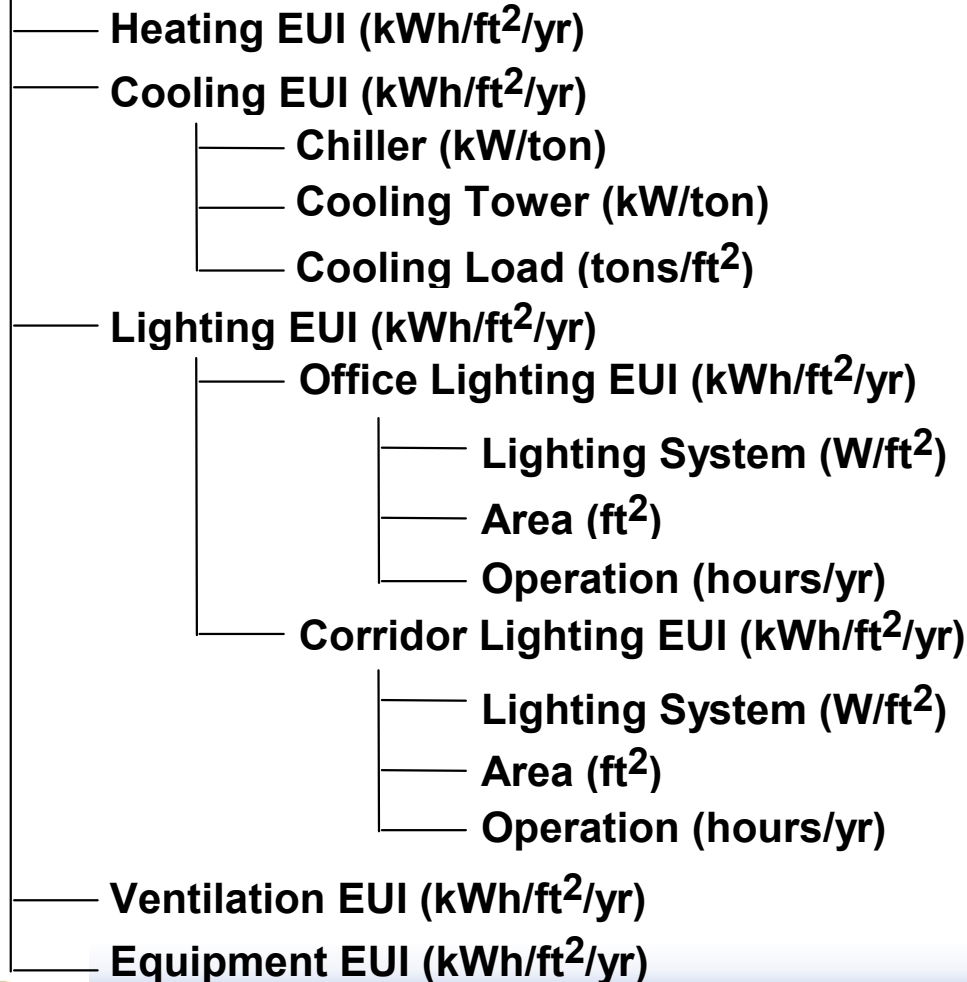
Cost Performance Metric Branch

Life-Cycle Cost (\$Total, \$/ft²)

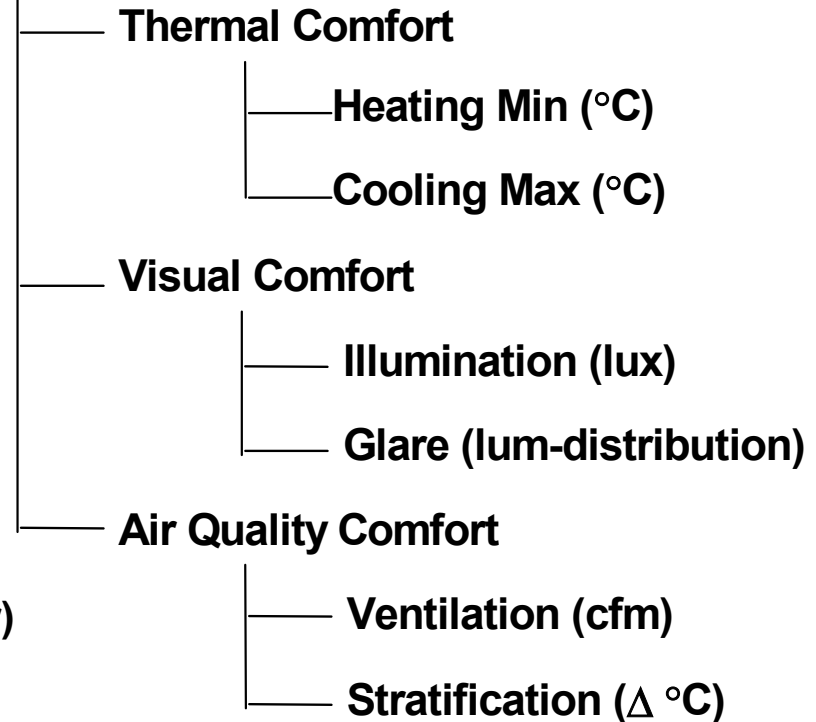


Energy and Comfort Metrics

Energy Use Intensity (kWh/ft²/yr)



Occupant Comfort



Performance Metric Data Model

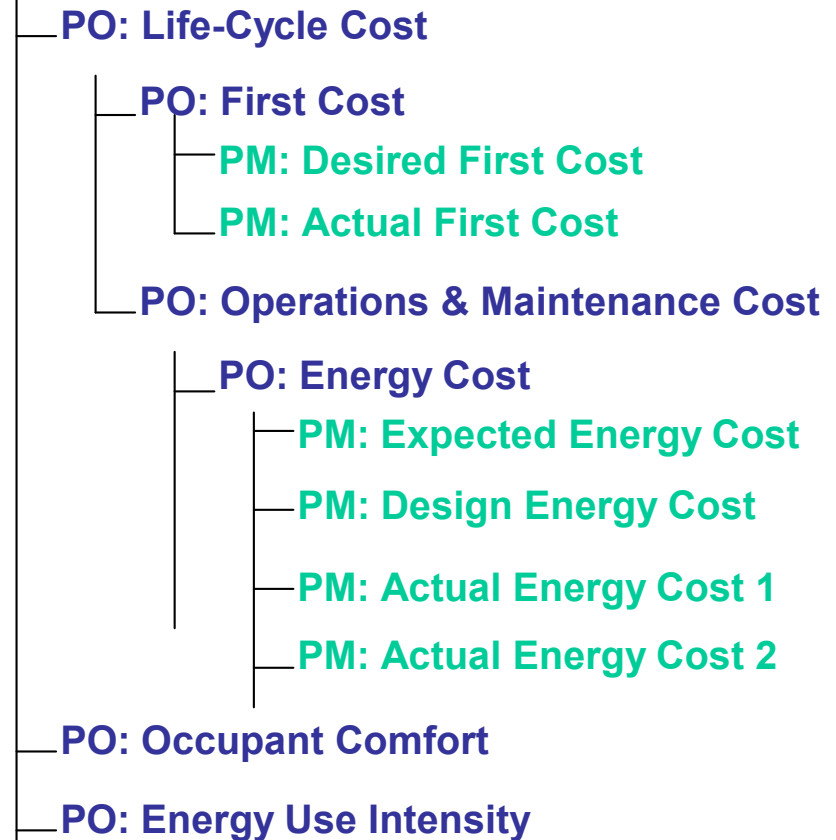
➤ Performance Objective

- Name,
- Specifier,
- Date of Creation,
- Description

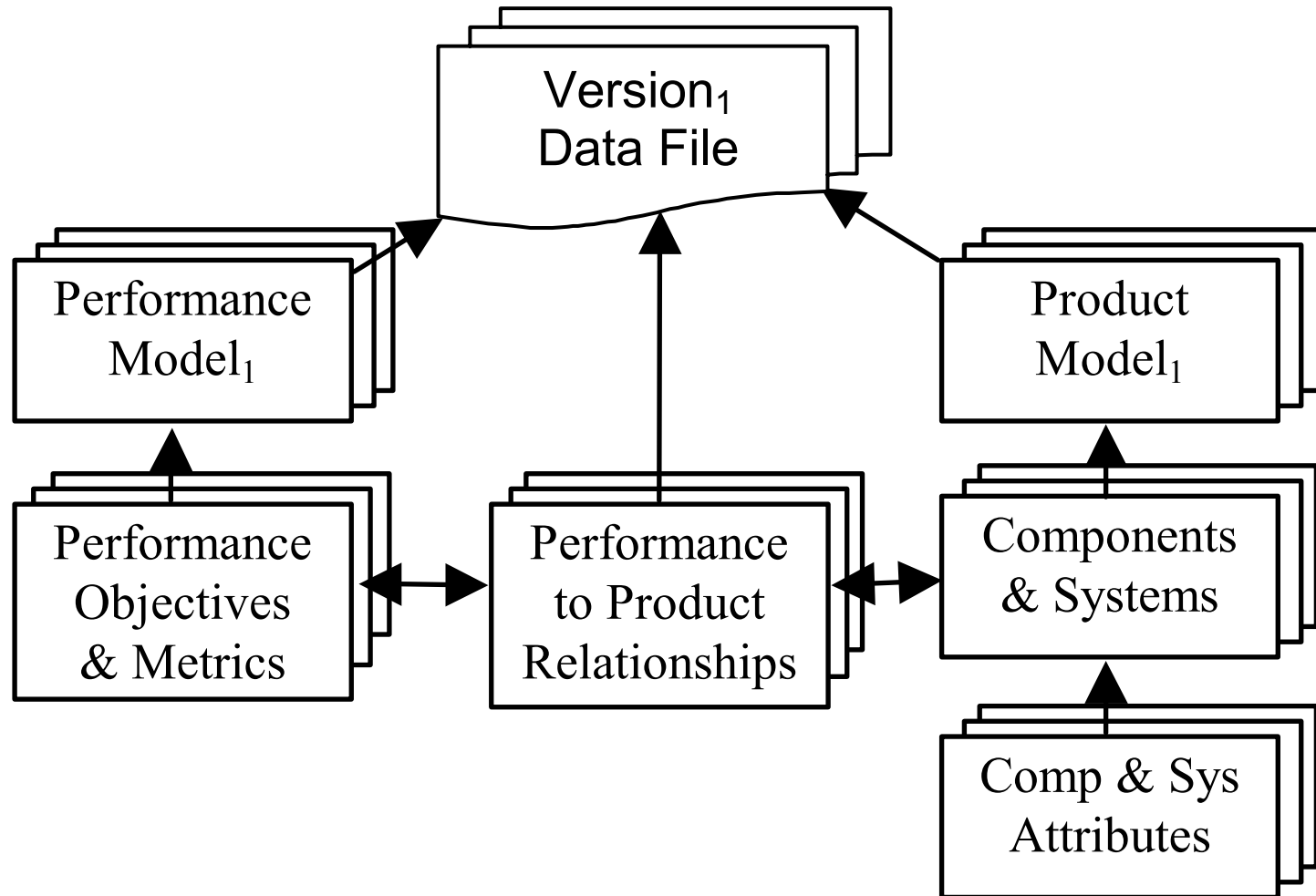
➤ Performance Metric

- Name,
- Specifier,
- Date of Creation,
- Description,
- Metric Type,
- Data Type,
- Source
- Data Values

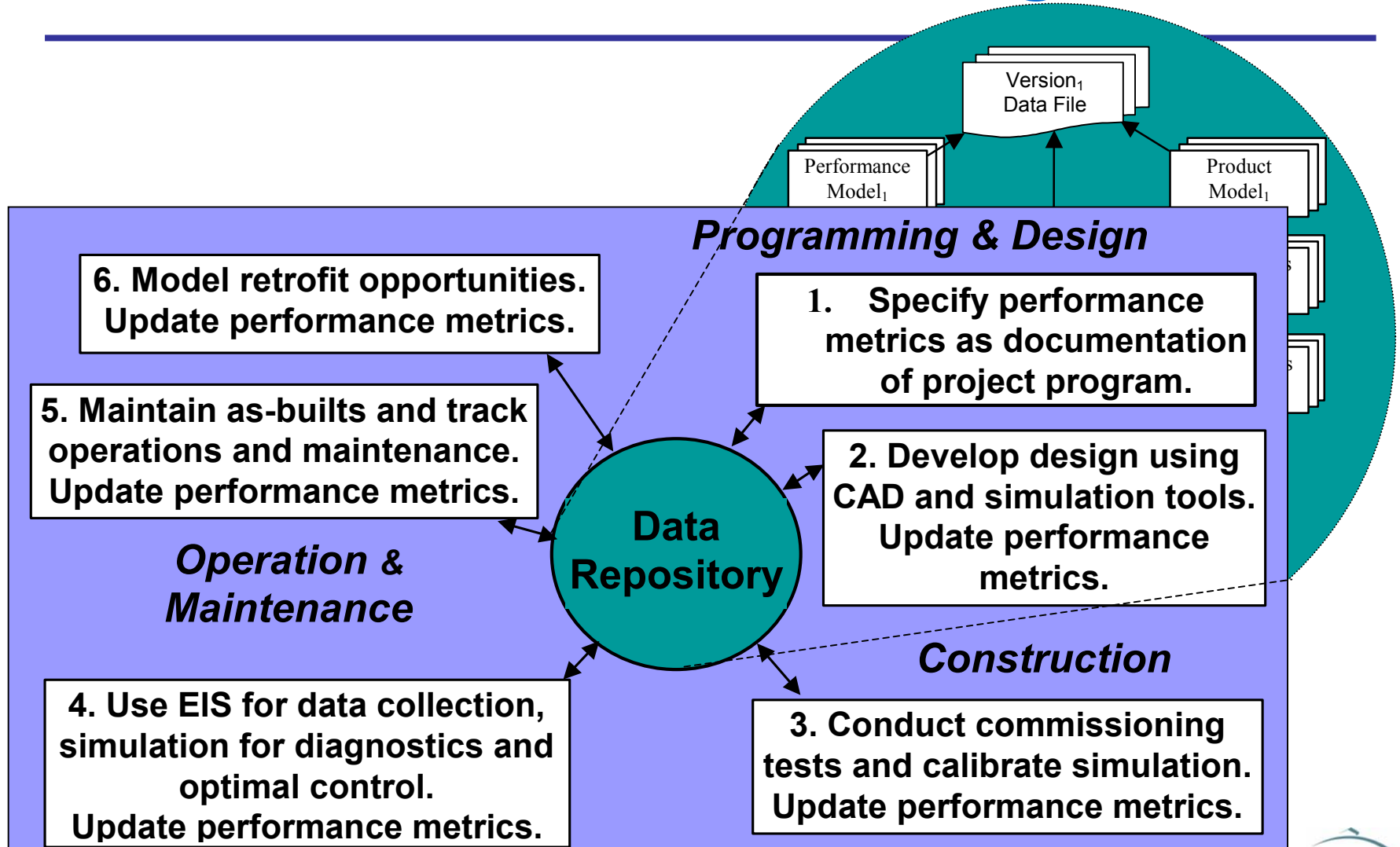
PO Hierarchy



Performance Model with Building Data Model



Performance Metric Tracking Scenario



Metracker Software Prototype

The screenshot displays the Metracker software interface for 'Example Project.met'. The interface includes a menu bar (File, Edit, View, Project, Performance, Window, Help) and a toolbar. The main workspace is divided into two panes: 'Example Project.met:1' and 'Example Project.met:2'.

Example Project.met:1 shows a hierarchy of project versions:

- Example Project
 - Version One - Performance Planning
 - Version Two - Schematic Design
 - Version Three - AsOperated 1999

Example Project.met:2 shows a detailed performance model hierarchy:

- Project: \$
 - Site: \$
 - Building:
 - Building Storey: \$
 - Performance Objective: Root Performance Objective
 - Performance Objective: Optimize Energy Performance** (selected)
 - Performance Objective: Whole Building Energy Use
 - Performance Metric: As-Operated 1999 Whole Building Monthly Electric EUI
 - Performance Metric: Schematic Whole Building Monthly Electric EUI
 - Performance Metric: Baseline Whole Building Monthly Electric EUI
 - Performance Objective: Cooling System Energy Use
 - Performance Objective: Heating System Energy Use
 - Performance Objective: Lighting System Energy Use
 - Performance Objective: Ventilation System Energy Use
 - Performance Objective: Equipment Energy Use

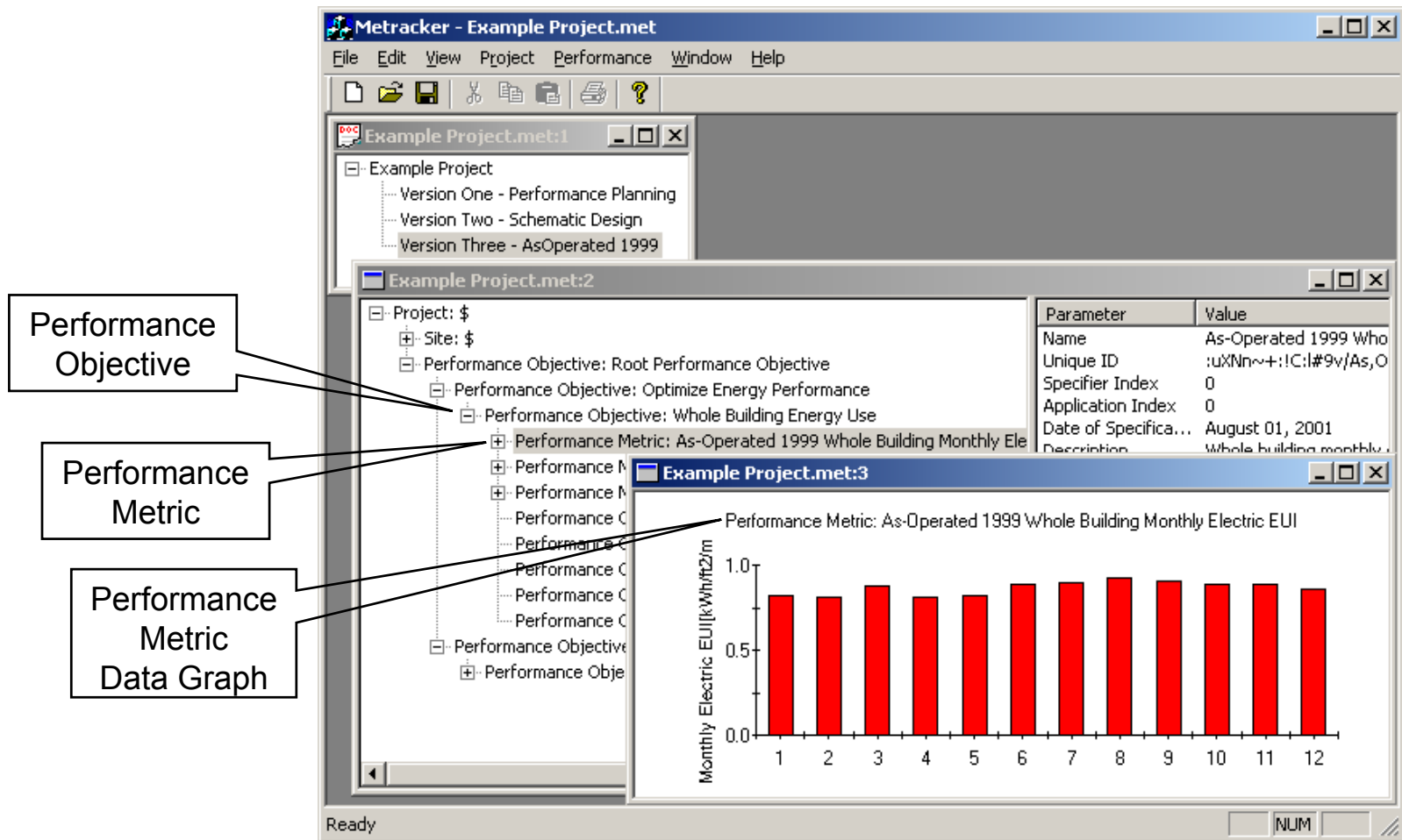
Properties and Values of Selected Object (Performance Objective: Optimize Energy Performance):

Property	Value
Name	Optimize Energy Performance
Unique ID	zseg\$wiZje6~LfrcuD&9
Specifier Index	0
Application Index	0
Date of Specification	July 31, 2001
Description	Reduce design energy cost cor
Objective Type	energy
Parent GUID	JQ#Z=9m,FeMuHKEoON6,

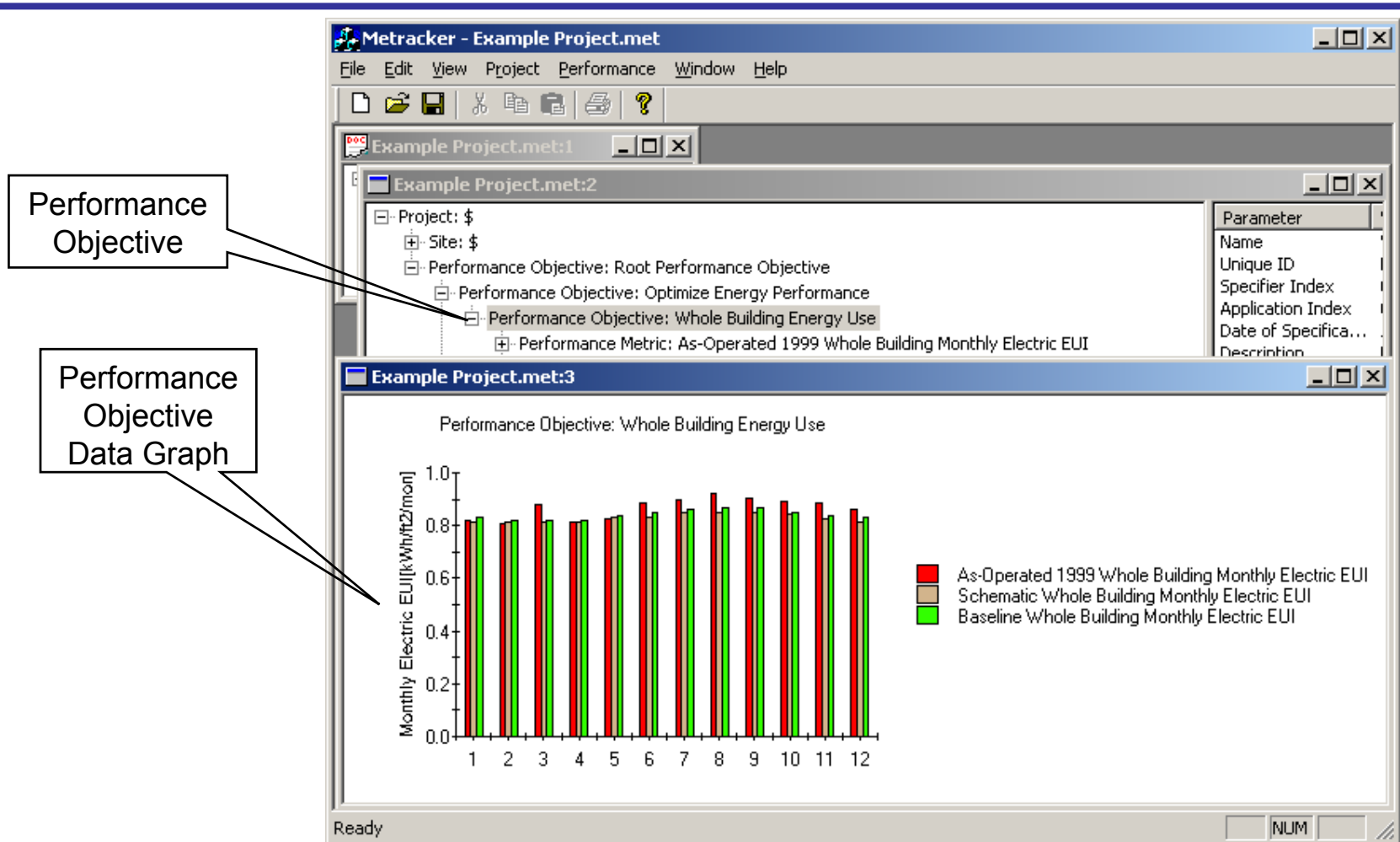
Callouts on the left side of the image identify the following components:

- Building Version (IFC data file)
- Product Model Hierarchy
- Performance Model Hierarchy
- Performance Objective
- Performance Objective Child
- Performance Metric
- Properties and Values of Selected Object

Metracker Software Prototype (cont.)



Metracker Software Prototype (cont.)



Status and Next Steps

- Industry Foundation Classes (IFC) Model Complete
- Metracker Version 1.5 Beta
 - Testbed Status Only
- Next Steps
 - Standardized Performance Metrics Report
 - Rethink Software Implementation for Deployment
 - Link with Related Software (e.g., design intent documentation, simulation, EMCS)
 - Feedback from You
- http://buildings.lbl.gov/hpcbs/Year_01/Element_2/01_E2_P2_1_2.html